

PATENT ABSTRACTS OF JAPAN

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(11)Publication number : 09-233428

(43)Date of publication of application : 05.09.1997

(51)Int.Cl.

H04N 5/92
H04N 7/08
H04N 7/081

(21)Application number : 08-065464

(71)Applicant : VICTOR CO OF JAPAN LTD

(22)Date of filing : 27.02.1996

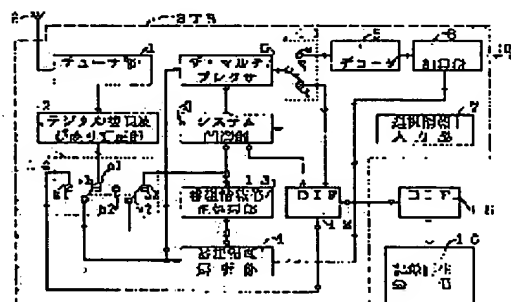
(72)Inventor : OISHI TAKESHI
SHINDO TOMOYUKI
TANAKA YUTAKA

(54) DIGITAL BROADCASTING RECEPTION TERMINAL EQUIPMENT

(57)Abstract:

PROBLEM TO BE SOLVED: To provide digital broadcasting reception terminal equipment which enables signal processing to the bit stream of recorded and reproduced digital data.

SOLUTION: The bit stream of digital data corresponding to the plural desired programs to be received selected by a viewer out of the bit stream of digital data containing all the plural pieces of program information outputted from a digital demodulation and error correction part 2 is recorded in the recording medium of a recording and reproducing device 16. Afterwards, when the existence of any program information is not confirmed inside a program correspondence table (PMT) corresponding to the program of program information (PAT) concerning the analyzed result of program information at a program information analytic part 4 for the bit stream of reproduced digital data, the contents of PAT of program specification information concerning plural programs in the bit stream of inputted digital data are corrected into the PAT having contents only concerning the program corresponding to the PMT whose existence is confirmed by the program information analytic part 4.



LEGAL STATUS

[Date of request for examination]

31.03.1999

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

3146969

[Date of registration]

12.01.2001

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's
decision of rejection]

[Date of extinction of right]

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CLAIMS

[Claim(s)]

[Claim 1] The packet constituted including the program specification information about two or more programs, It is the digital-broadcasting accepting-station equipment which receives the digital-broadcasting wave motion which the packet constituted including the information on the content of an individual program itself obtained based on the bit stream of the digital data which comes to multiplex the packet contained at least. A recovery means to restore to the digital-broadcasting wave motion which received, and to obtain the bit stream of digital data, A means to acquire the title information on the program acquired in relation to the program specification information about two or more programs from the bit stream of the digital data obtained with the aforementioned recovery means, An input means to set up the information on the selection result of the program for a reception performed based on the title information on the above mentioned program, A means to choose only the packet constituted including the information on the program for a reception that the above was chosen, and to give it to a decoder, The packet constituted including the program specification information about two or more programs, A means to enable it to make the packet constituted including the information on the program for a reception that the above was chosen output to an external record regenerative apparatus, The packet constituted including the program specification information about two or more programs outputted from the external record regenerative apparatus, When the packet constituted including the information on the program for regeneration by the packet constituted including the information on the program for a reception that the above was chosen is inputted The content of the program specification information in the packet constituted including the program specification information about two or more above mentioned programs Digital-broadcasting accepting-station equipment which comes to have the means made to correct only to the program specification information about the program for regeneration by the packet constituted including the information on the selected program for a reception.

[Claim 2] The packet constituted including the program specification information about two or more programs, It is the digital-broadcasting accepting-station equipment which receives the digital-broadcasting wave motion which the packet constituted including the information on the content of an individual program itself obtained based on the bit stream of the digital data which comes to multiplex the packet contained at least. A recovery means to restore to the digital-broadcasting wave motion which received, and to obtain the bit stream of digital data, A means to acquire the title information on the program acquired in relation to the program specification information about two or more programs from the bit stream of the digital data obtained with the aforementioned recovery means, An input means to set up the information on the selection result of the program for a reception performed based on the title information on the above mentioned program, A means to choose only the packet constituted including the information on the program for a reception that the above was chosen, and to give it to a decoder, The packet constituted including the program specification information about two or more programs, In case the packet constituted including the information on the program for a reception that the above was chosen is made to output to an external record regenerative apparatus Digital-broadcasting accepting-station equipment which comes to have a means to make the content of the program specification information in the packet constituted including the program specification information about two or more above mentioned programs correct and output only to the program specification information on the packet constituted including the information on the selected program

for a reception.

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Field

0001 } [The technical field to which invention belongs] The packet which this invention consists of including the program specification information about two or more programs, the digital-broadcasting accepting-station equipment which receives the digital-broadcasting wave motion from which the packet constituted including the information on the content of an individual program itself obtained the packet contained at least based on the bit stream of the digital data which comes to carry out time multiplexing -- especially The packet constituted including the information on the program for a reception is chosen from the bit stream of the digital data which restored to it and obtained the digital-broadcasting wave motion which received. It is related with the digital-broadcasting accepting-station equipment which enabled it to also perform signal processing of the bit stream of the digital data which recorded, reproduced and obtained it with the record regenerative apparatus with the packet constituted including the program specification information.

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Technique

0002 } [Description of the Prior Art] Where time multiplexing of the digital data of two or more programs by which high efficiency compression was carried out, respectively is carried out, it considers as a digital-broadcasting wave motion, and the technical study of the various kinds which the digital-communications satellite broadcasting broadcast using the communication satellite is already used in some of countries, and also are turned to utilization in our country is performed. In the aforementioned digital-communications satellite broadcasting, only the number of a transponder (transmission-via-satellite machine) is made to transmit the transport stream (TS) which carried out high efficiency compression of various kinds of programs (program) for example, with MPEM2 encoder, considered as the transport packet (TP) which has 188 bytes of amount of data, and carried out time multiplexing of the aforementioned transport packet in parallel.

[0003] Therefore, the televiewer of digital-communications satellite broadcasting who received the digital-broadcasting wave motion of the status that many programs are sent in **** simultaneous Although the program which wishes to receive is chosen from the programs of the masses which can receive (channel selection) and it must be made to perform a reception operation, in order to make easy a selection operation (channel-selection operation) of the program described above in MPEG The packet constituted including the program specification information (program specification information -- Program Specific Information<-PSI) about two or more programs is prepared. And the packet constituted including the program specification information about two or more aforementioned programs. The digital-broadcasting wave motion from which the packet constituted including the information on the content of an individual program itself obtained the packet contained at least based on the bit stream of the digital data which comes to carry out time multiplexing is sent to a receiving side from a transmitting side. With the digital-broadcasting accepting-station equipment (set top box --STB) which received the aforementioned digital-broadcasting wave motion The information on the packet constituted including the program specification information about two or more above mentioned programs is also used effectively, and selection (channel selection) of the program of reception hope is made to perform it easily.

[0004] Drawing 10 shows the example of a configuration of MPEG 2 transport stream (TS) which consists of 188 bytes of transport packet (TP), respectively, and the example of a configuration of a transport packet. It is as follows when the main fractions in the transport packet shown all over drawing 10 are explained. First, a 8-bit synchronous byte is data used in order that a decoder may detect the head of a transport packet, and the 1-bit error display shows the existence of the bit error of this transport packet. Furthermore, 13-bit PID (packet identifier) is stream identification information, the attribute of the individual stream of an applicable packet is shown, for example, a transport packet [as / whose 13-bit aforementioned PID is "0"] shows that it is PAT (program association table) currently later mentioned with reference to drawing 11 .

[0005] The packet constituted including the program specification information (PSI) about two or more programs mentioned already, The digital-broadcasting accepting-station equipment (STB) which receives the digital-broadcasting wave motion from which the packet constituted including the information on the content of an individual program itself obtained the packet contained at least based on the bit stream of the digital data which comes to carry out time multiplexing As illustrated to drawing 5 , the tuner section 1, and a digital recovery and the error correction section 2, With the system-

control section 3 constituted including memory and the computer, the program information analysis section 4, the ** multiplexer 5, and a picture and the acoustic MPEG decoder (decoder) 6, it has the selection information input section 7 etc., and is constituted. With the digital-broadcasting accepting-station equipment STB into which the digital-broadcasting wave motion which received waves with the antenna 9 was inputted, after amplifying and carrying out frequency conversion of the digital-broadcasting wave motion in the tuner section 1, it gives a digital recovery and the error correction section 2, and error correction of the bit stream of the digital data by which the digital recovery was carried out there is carried out.

[0006] And the bit stream of the digital data to which error correction was performed is given to the ** multiplexer 5 and the program information analysis section 4. In the aforementioned program information analysis section 4, the title information on the program acquired in relation to the program specification information about two or more programs that it can set to the bit stream of digital data after performing error correction is supplied to the display which is not illustrated through the adder 8 and the output terminal 10. If the information for receiving the program for a reception which looked at the title information on the program displayed on the screen of the display which the televiewer described above, and chose the program which wishes to receive, and the above chose is set as the selection information input section 7 Only the packet which consists of the system-control section 3 in the digital-broadcasting accepting-station equipment STB including the information on the program for a reception that the above was chosen is supplied to a decoder 6 through the ** multiplexer 5.

[0007] The decode operation about the digital data of the packet of the picture information supplied to it and the packet of speech information is performed, and the video signal and sound signal by which decode was carried out are made to output through an adder 8 in the aforementioned decoder (a picture and acoustic MPEG decoder) 6. Thus, the video signal and sound signal of one program [****] which the televiewer chose from **** among two or more programs received with the digital-broadcasting accepting-station equipment STB can be made to output with the digital-broadcasting accepting-station equipment STB. Moreover, the video signal and sound signal of one program which were outputted from the aforementioned digital-broadcasting accepting-station equipment STB cannot be overemphasized by that it can record and reproduce from the former if needed using helical-scan type the video cassette recorder (VCR) or video tape recorder (VTR) used widely globally as a record regenerative apparatus for performing record regeneration of the video signal of the analog signal gestalt. [****]

[0008] By the way, the digital-broadcasting wave motion which has received with the above mentioned digital-broadcasting accepting-station equipment STB The packet constituted including the program specification information about two or more programs as mentioned already, It is the digital-broadcasting wave motion from which the packet constituted including the information on the content of an individual program itself obtained the packet contained at least based on the bit stream of the digital data which comes to carry out time multiplexing. Although the bit stream of the digital data outputted from the digital recovery and the error correction section 2 in the aforementioned digital-broadcasting accepting-station equipment STB contains all of two or more program informations transmitted from the transmitting side With the conventional digital-broadcasting accepting-station equipment STB Though there are other programs of reception hope besides one program [****] which the televiewer chose, since it was able to carry out the decode of two or more programs and they were not able to be made to output simultaneously, the bit stream of the digital data of programs other than one program [****] which the televiewer chose was not used. Although it is solvable also by being made to make the individual signal with which the aforementioned point prepares a decoder in the digital-broadcasting accepting-station equipment STB for each thing of every of two or more programs of reception hope, and decode was carried out by each aforementioned decoder record by the individual recording device, since the configuration of equipment is complicated and it becomes cost quantity, the above resolution meanses are not employable at all.

[0009] By the way, helical-scan type the video cassette recorder (VCR) or video tape recorder (VTR) globally used widely as a record regenerative apparatus for performing record regeneration of the video signal of the analog signal gestalt mentioned already Its attention is directed to the point that it is usable also as mass memory for digital data in a digital instrument. While the device section of VCR of an S-VHS (registered trademark) method is recently used as it is and it has the compatibility with

present VHS method VCR of D-VHS method which could be made to carry out record regeneration also of the bit stream of the digital data supplied through the digital interface was proposed. and VCR of the aforementioned D-VHS method from it being what can perform record regeneration of the bit stream of digital data as mentioned above Out of the bit stream of the digital data containing all of two or more program informations outputted from the digital recovery under digital-broadcasting accepting-station equipment STB which received the digital-broadcasting wave motion by the above mentioned digital-communications satellite broadcasting, and the error correction section 2 When the bit stream of the digital data which corresponds with two or more programs of reception hope is chosen and it was made to carry out record regeneration, many above mentioned troubles thought whether it would be unsolvable good.

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 TECHNICAL PROBLEM

10[0] [Problem(s) to be Solved by the Invention] However, the selection operation of a program in the conventional digital-broadcasting accepting-station equipment STB Since it is carried out according to the sequential step in the flow chart illustrated to drawing 6 The packet constituted including the program specification information about two or more programs outputted from a digital recovery and the error correction section 2 as mentioned above, Out of the bit stream of the digital data containing the packet constituted including the information on the content of an individual program itself Choose and record the packet which corresponds with the packet constituted including the program specification information about two or more programs, and one or more programs of reception hope, and a recorded magnetic tape is obtained. Even if it supplied the bit stream of the digital data reproduced from the recorded magnetic tape to the digital-broadcasting accepting-station equipment STB, a normal regeneration operation could not be performed.

[0011] It is as follows when the aforementioned point is explained concretely. First, the digital-broadcasting wave motion which receives with the digital-broadcasting accepting-station equipment STB High efficiency compression of various kinds of programs (program) is carried out with MPEM2 encoder. It considers as the transport packet (TP) which has 188 bytes of amount of data, respectively. The transport stream (TS) which carried out time multiplexing of the aforementioned transport packet Suppose that it was what is transmitting only the number of a transponder (transmission-via-satellite machine) in parallel. Moreover, the information delivered from the transmitting side in order to make easy a selection operation (channel-selection operation) of a program, namely, as a packet constituted including the program specification information (program specification information --Program Specific Information<-PSI) about two or more programs Suppose that they were the packet constituted including PAT (program association-table <- race card) illustrated to drawing 11 , and the packet constituted including PMT (program map table <- program correspondence table) illustrated to drawing 12 .

[0012] PMT shown in PAT shown in the above mentioned drawing 11 or the drawing 12 It is constituted all over the field shown as a pay load (information) in the transport packet shown all over drawing 10 . Moreover, in the packet constituted including the information on the content of an individual program itself, the information (a picture information, speech information) on the content of an individual program itself is established all over the field shown as a pay load (information) in the transport packet shown all over drawing 10 . Drawing 7 is drawing where the conventional digital-broadcasting accepting-station equipment STB shown in drawing 5 is giving intelligibly illustration explanation of the status perform a selection operation of a program according to the sequential step in the flow chart illustrated to drawing 6 .

[0013] First, a packet [as / whose 13-bit PID (packet identifier) in the transport packet with which (a) of drawing 7 is shown in drawing 10 is "0"], that is As a pay load (information) in the transport packet shown all over drawing 10 Transport packet TP (PAT) [the transport packet whose numeric value of PID indicated above [of view 7] (a) is 00] which PAT shown in drawing 11 all over the field shown consists of, As a pay load (information) in the transport packet shown all over drawing 10 Transport packet TP (PMT) [the transport packet whose numeric values of PID indicated above [of view 7] (a) are 05, 07, and 09] which PMT shown in drawing 12 all over the field shown consists of, As a pay load (information) in the transport packet shown all over drawing 10 Transport packet TP [the transport packet whose numeric values of PID indicated above [of view 7] (a) are 10, 11, and 12--32] constituted all over the

field shown including the information on the content of an individual program itself It is drawing having shown typically the status that it was arranged on the time-axis where time multiplexing is carried out. [0014] (b) of drawing 7 the case where the program currently treated by one transponder (transmission-via-satellite machine) presupposes that it was three pieces (three programs) moreover, for an example It is drawing explaining the above mentioned content of PAT (race card). in this drawing As a numeric value of PID of the transport packet in which the individual program correspondence table (PMT) exists about each thing of program #1-#3 [all (the example of ** three pieces)] currently treated by one transponder (transmission-via-satellite machine) The transport packet in which PMT of program #1 exists is a transport packet whose numeric value of PID is 05. Moreover, the transport packet in which PMT of program #2 exists is a transport packet whose numeric value of PID is 07. The transport packet in which PMT of program #3 furthermore exists has illustrated PAT of the content that it is the transport packet whose numeric value of PID is 09.

[0015] Next, each drawing of (c) - (e) of drawing 7 is set to PAT (race card) illustrated to (b) of the above mentioned drawing 7 . each -- noting that the individual program correspondence table (PMT) about each thing of program #1-#3 exists PMT (program correspondence table) constituted all over the field shown as a pay load (information) in the transport packet which has the numeric value of PID directed is illustrated. For example, (c) of drawing 7 is set in PAT (race card) illustrated to (b) of the above mentioned drawing 7 . It is PMT (program correspondence table) constituted by the field of the pay load (information) in a transport packet equipped with PID which has the numeric value 05 shown that the program correspondence table (PMT) about program #1 exists.

[0016] Moreover, (d) of drawing 7 is set in PAT (race card) illustrated to (b) of the above mentioned drawing 7 , for example. It is PMT (program correspondence table) constituted by the field of the pay load (information) in a transport packet equipped with PID which has the numeric value 07 shown that the program correspondence table (PMT) about program #2 exists. It is under [PAT / which illustrated (e) of drawing 7 to (b) of the above mentioned drawing 7 similarly / (race card)] setting. It is PMT (program correspondence table) constituted by the field of the pay load (information) in a transport packet equipped with PID which has the numeric value 09 shown that the program correspondence table (PMT) about program #3 exists.

[0017] each -- corresponding to the individual thing of program #1-#3 to PMT (program correspondence table) constituted by the field of the pay load (information) in the transport packet which has PID specified by PAT (race card) illustrated to (b) of drawing 7 The numeric value of PID of the transport packet in which informations, such as the speech information in one program [****] currently dealt with by the PMT, a picture information, and PCR (program time criteria reference value), exist is shown. Namely, by for example, PAT (race card) illustrated to (b) of drawing 7 The numeric value of PID by which it was presupposed that PMT (program correspondence table) of program #1 was constituted by the field of the pay load (information) in a transport packet in the field of the pay load (information) in the transport packet of 05 The transport packet in which informations, such as the speech information in the program of program #1, a picture information, and PCR (program time criteria reference value), exist as illustrated by (c) of drawing 7 PMT which is directed by PID ([PID10, PID11, PID12, PID15] which are shown in (c) of view 7) of a numeric value [**** / respectively] is constituted.

[0018] By PAT (race card) illustrated to (b) of drawing 7 , moreover, PMT (program correspondence table) of program #2 In the field of the pay load (information) in the transport packet of 07, the numeric value of PID it was presupposed that was constituted by the field of the pay load (information) in a transport packet The transport packet in which informations, such as the speech information in the program of program #2, a picture information, and PCR (program time criteria reference value), exist as illustrated by (d) of drawing 7 PMT which is directed by PID ([PID20, PID21, PID22, PID25] which are shown in (d) of view 7) of a numeric value [**** / respectively] is constituted. By PAT (race card) illustrated to (b) of drawing 7 , furthermore, PMT (program correspondence table) of program #3 In the field of the pay load (information) in the transport packet of 09, the numeric value of PID it was presupposed that was constituted by the field of the pay load (information) in a transport packet The transport packet in which informations, such as the speech information in the program of program #2, a picture information, and PCR (program time criteria reference value), exist as illustrated by (e) of drawing 7 PMT which is directed by PID ([PID30, PID31, PID32, PID35] which are shown in (d) of view 7) of a numeric value [**** / respectively] is constituted.

[0019] Now, it sets to the conventional digital-broadcasting accepting-station equipment STB illustrated to drawing 5 . The digital-broadcasting wave motion which received waves with the antenna 9 is amplified in the tuner section 1 like previous statement. After carrying out frequency conversion, a digital recovery is carried out at a digital recovery and the error correction section 2. In the program information analysis section 4 to which the bit stream of the digital data of the status that error correction was performed was supplied First, the transport packet constituted like the step (1) in the flow chart of drawing 6 including the program specification information about two or more programs that it can set to the bit stream of digital data, that is As a pay load (information) in the transport packet shown all over drawing 10 Transport packet TP (PAT) [the transport packet whose numeric value of PID indicated above [of view 7] (a) is 00] which PAT shown in drawing 11 all over the field shown consists of is extracted. The information on PAT (race card) which exists in the field of the pay load (information) in the extracted transport packet is acquired.

[0020] The transport packet which consists of a step (2) including PMT (program correspondence table) corresponding to each program shown in PAT (race card) is extracted. at a step (3) Processing about all PMTs (program correspondence table) is seen whether corresponded to each program shown in PAT (race card), and completed, and, in YES, it progresses at a step (5), and, in NO, returns at a step (1). Subsequently, at a step (5), the title information on a program is supplied to a display, the title of a program is displayed, in a step (6), the program a televiewer regards the title of the program displayed on the display, and expects a reception is chosen, and the program selection information of reception hope is set as the input section. The packet by which the system-control section is constituted from a step (7) including the information on the above mentioned program of reception hope is specified, and only the packet constituted including the information on the program of reception hope which the ** multiplexer described above is supplied to a decoder. At a step (8), the decode of the digital data of the above mentioned program of reception hope is carried out, and a regenerative signal is outputted.

[0021] By the way, the above reception operations of digital-broadcasting accepting-station equipment performed according to each sequential step in the flow chart of drawing 6 In the bit stream of the digital data currently supplied to the program information analysis section 4 in digital-broadcasting accepting-station equipment Although it is smoothly carried out when PMT (program correspondence table) which corresponds with all the programs shown in PAT (race card) which shows the program specification information about two or more programs is contained In the bit stream of the digital data supplied to the program information analysis section 4 in digital-broadcasting accepting-station equipment When only PMT (program correspondence table) which corresponds with the program of a part of program shown in PAT (race card) which shows the program specification information about two or more programs is contained Step (1) mentioned already Since it is carried out by an operation of - (4) *****ing and it does not progress to a step (5) from a step (4), the decode of the program information can be carried out and it cannot be made outputted with digital-broadcasting accepting-station equipment.

[0022] When digital-broadcasting accepting-station equipment is performing the reception operation about the digital-broadcasting wave motion which received waves with the antenna 9 It is outputted from the digital recovery and the error correction section 2 in digital-broadcasting accepting-station equipment. The bit stream of the digital data currently supplied to the program information analysis section 4 Since it is in the status that PMT (program correspondence table) which corresponds with all the programs shown in PAT (race card) which shows the program specification information about two or more programs is included, although an operation of digital-broadcasting accepting-station equipment is performed normally The packet constituted including the program specification information about two or more programs outputted from a digital recovery and the error correction section 2, Out of the bit stream of the digital data containing the packet constituted including the information on the content of an individual program itself Choose and record the packet which corresponds with the packet constituted including the program specification information about two or more programs, and one or more programs of reception hope, and a recorded magnetic tape is obtained. When the bit stream of the digital data reproduced from the recorded magnetic tape is supplied to the digital-broadcasting accepting-station equipment STB In the bit stream of the digital data supplied to the program information analysis section 4 in digital-broadcasting accepting-station equipment Since it is in the status that only PMT (program correspondence table) which corresponds with the program of a part of

program shown in PAT (race card) which shows the program specification information about two or more programs is contained It does not progress to a step (5) from a step (4), and the decode of the program information can be carried out and it cannot be made only carried out by an operation of step (1) - (4) *****ing like previous statement, and outputted with digital-broadcasting accepting-station equipment. Then, the solution over the aforementioned trouble was searched for.

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MEANS

0023 } [Means for Solving the Problem] The packet which this invention consists of including the program specification information about two or more programs, It is the digital-broadcasting accepting-station equipment which receives the digital-broadcasting wave motion which the packet constituted including the information on the content of an individual program itself obtained based on the bit stream of the digital data which comes to multiplex the packet contained at least. A recovery means to restore to the digital-broadcasting wave motion which received, and to obtain the bit stream of digital data, A means to acquire the title information on the program acquired in relation to the program specification information about two or more programs from the bit stream of the digital data obtained with the aforementioned recovery means, An input means to set up the information on the selection result of the program for a reception performed based on the title information on the above mentioned program, A means to choose only the packet constituted including the information on the program for a reception that the above was chosen, and to give it to a decoder, The packet constituted including the program specification information about two or more programs, A means to enable it to make the packet constituted including the information on the program for a reception that the above was chosen output to an external record regenerative apparatus, The packet constituted including the program specification information about two or more programs outputted from the external record regenerative apparatus, When the packet constituted including the information on the program for regeneration by the packet constituted including the information on the program for a reception that the above was chosen is inputted The content of the program specification information in the packet constituted including the program specification information about two or more above mentioned programs The digital-broadcasting accepting-station equipment which comes to have the means made to correct only to the program specification information about the program for regeneration by the packet constituted including the information on the selected program for a reception, And the packet constituted including the program specification information about two or more programs, It is the digital-broadcasting accepting-station equipment which receives the digital-broadcasting wave motion which the packet constituted including the information on the content of an individual program itself obtained based on the bit stream of the digital data which comes to multiplex the packet contained at least. A recovery means to restore to the digital-broadcasting wave motion which received, and to obtain the bit stream of digital data, A means to acquire the title information on the program acquired in relation to the program specification information about two or more programs from the bit stream of the digital data obtained with the aforementioned recovery means, An input means to set up the information on the selection result of the program for a reception performed based on the title information on the above mentioned program, A means to choose only the packet constituted including the information on the program for a reception that the above was chosen, and to give it to a decoder, The packet constituted including the program specification information about two or more programs, In case the packet constituted including the information on the program for a reception that the above was chosen is made to output to an external record regenerative apparatus The content of the program specification information in the packet constituted including the program specification information about two or more above mentioned programs The digital-broadcasting accepting-station equipment which comes to have the means made to correct and output only to the program specification information on the packet constituted including the information on the selected program for a reception is offered.

[0024]

[Embodiments of the Invention] Hereafter, with reference to an accompanying drawing, the concrete content of the digital-broadcasting accepting-station equipment of this invention is explained in detail. The digital-broadcasting accepting-station equipment (STB) of this invention which the drawing 1 and the drawing 3 are block diagrams showing the example of a configuration of the digital-broadcasting accepting-station equipment of this invention, and was illustrated to each aforementioned drawing. The packet constituted including the program specification information (PSI) about two or more programs like the conventional digital-broadcasting accepting-station equipment (STB) mentioned already with reference to drawing 5. It has the function which the digital-broadcasting wave motion from which the packet constituted including the information on the content of an individual program itself obtained the packet contained at least based on the bit stream of the digital data which comes to carry out time multiplexing can receive. And the same drawing sign as the drawing sign currently used all over drawing 5 is given to the component in the digital-broadcasting accepting-station equipment of this invention shown in the drawing 1 and the drawing 3, and the corresponding component.

[0025] In the digital-broadcasting accepting-station equipment STB shown in the drawing 1 and the drawing 3. The system-control section constituted by the tuner section and 2 containing a digital recovery and the error correction section, and 1 containing memory and a computer, as for 3, 4 a ** multiplexer and 6 for the program information analysis section and 5 A picture and acoustic MPEG decoder (decoder). In 7, the selection information input section and 8 an antenna and 10 for an adder and 9 An output terminal, 11 is the record regenerative apparatus with which a change-over switch, and 12 and 15 can carry out a digital interface, and 16 can carry out record regeneration of the bit stream of digital data, and all over drawing 1, 13 is the program information correction processing section, and 14 is a change-over switch. And the above mentioned traveling contact v1 and the above mentioned traveling contact v2 of a change-over switch 14 interlock, and perform a switching operation. Moreover, as for a change-over switch and 17, 14S are [an adder and 18] the program information rewriting processing sections all over drawing 3.

[0026] Now, the digital-broadcasting accepting-station equipment STB of this invention shown in the drawing 1 and the drawing 3. Like the conventional digital-broadcasting accepting-station equipment STB mentioned already with reference to each drawing of the drawing 5 and the drawing 6. One program of reception hope is chosen for the digital-broadcasting wave motion which received waves with the antenna 9. The decode of the digital data of the one selected program can be carried out by the decoder 6, and can make it output from an output terminal 10, and also Out of the bit stream of the digital data containing all of two or more program informations outputted from the digital recovery under digital-broadcasting accepting-station equipment STB, and the error correction section 2. It is constituted so that the bit stream of the digital data which corresponds with two or more programs as which the bit stream of the digital data which corresponds with two or more programs of reception hope is chosen as, and the above was chosen can also be made to output through a digital interface.

[0027] moreover, with the digital-broadcasting accepting-station equipment STB of this invention. A televiewer chooses from the bit streams of the digital data containing all of two or more program informations outputted from a digital recovery and the error correction section 2 as mentioned above. The bit stream of the digital data which corresponds with the program of the reception hope of the plurality made to output from the digital-broadcasting accepting-station equipment STB through a digital interface. After making it record on the record medium of a 1 **** record regenerative apparatus, the bit stream of the digital data reproduced with the record regenerative apparatus is made to input. The decode of the program [****] expected of regeneration can be chosen and carried out from the bit stream of the digital data which corresponds with the program of the reception hope of the plurality made to input.

[0028] a setup of the mode of operation of the digital-broadcasting accepting-station equipment STB is performed by being alike through the input unit (for example, a keyboard or a mouse) of the control unit which is not illustrated, and inputting a mode-of-operation information into the system-control section 3. For example, about the digital-broadcasting wave motion which the digital-broadcasting accepting-station equipment STB received with the antenna 9, when set as the mode of operation which chooses the program of reception hope from two or more programs included in the aforementioned digital-broadcasting wave motion, the traveling contacts v1 and v2 of the change-over switch 14 in drawing 1

are switched to a stationary-contacts a [a1 and] 2 side, and traveling contact v of change-over-switch 14S in drawing 3 is switched to a stationary-contact a side.

[0029] As mentioned above, when the digital-broadcasting accepting-station equipment STB is set as the mode of operation which chooses the program of reception hope from two or more programs included in the digital-broadcasting wave motion which received waves with the antenna 9, it changes into the status that changed the traveling contacts v1 and v2 of the change-over switch 14 in drawing 1 into the status that it was switched to the stationary-contacts a [a1 and] 2 side, and traveling contact v of change-over-switch 14S in drawing 3 was switched to the stationary-contact a side. And the digital-broadcasting wave motion which received waves with the antenna 9 After amplifying and carrying out frequency conversion in the tuner section 1, while a digital recovery is carried out at a digital recovery and the error correction section 2, error correction of the bit stream of digital data is carried out. With the digital-broadcasting accepting-station equipment STB shown in drawing 1 , the program information analysis section 4 and the ** multiplexer 5 are supplied through the traveling contact v1 and the stationary contact a1 of a change-over switch 14. Moreover, with the digital-broadcasting accepting-station equipment STB shown in drawing 3 , the program information analysis section 4 and the ** multiplexer 5 are supplied through traveling contact v and stationary-contact a of change-over-switch 14S.

[0030] In the aforementioned program information analysis section 4, the title information on the program acquired in relation to the program specification information about two or more programs that it can set to the bit stream of digital data after performing error correction is extracted. Namely, in the transport packet made to constitute from the above mentioned program information analysis section 4 including PMT (program correspondence table) described above, for example Extract the title information on the program made to have in the type of alphabetic information, or for example, PID of the transport packet made to be equipped with the title information on the above mentioned program in the type of alphabetic information It is made to make it direct by the transport packet made to constitute including the above mentioned PMT (program correspondence table). The title information on the program made to have in the type of alphabetic information is extracted from the directed transport packet noting that it is constituted including the title information on the above mentioned program. As it is the above, the title information on the program acquired in relation to the program specification information about two or more programs extracted by the program information analysis section 4 is supplied to the display which is not illustrated through the adder 8 and the output terminal 10. If the information for receiving the program for a reception which looked at the title information on the program displayed on the screen of the display which the televiewer described above, and chose the program which wishes to receive, and the above chose is set as the selection information input section 7 Only the packet constituted including the information on the program for a reception that the above was chosen controls an operation of the ** multiplexer 5 by the system-control section 3 in the digital-broadcasting accepting-station equipment STB to output from the ** multiplexer 5.

[0031] Although the digital data outputted from the above mentioned ** multiplexer 5 is supplied to traveling contact v of a change-over switch 11, it changes traveling contact v of the above mentioned change-over switch 11 into the status that changed into the status that it was switched to the stationary-contact a side, according to the mode of operation set as the digital-broadcasting accepting-station equipment STB, or it was switched to the stationary-contact b side. Although it changes traveling contact v of that into the status that it was switched to the stationary-contact a side, in the change-over switch 11 in drawing 3 , the digital data outputted from the ** multiplexer 5 in this case is supplied to the decoder 6 through above mentioned traveling contact v and above mentioned stationary-contact a of a change-over switch 11. and in the aforementioned decoder (a picture and acoustic MPEG decoder) 6 Perform the decode operation about the digital data of the packet of the picture information supplied to it, and the packet of speech information, and the video signal and sound signal by which decode was carried out are supplied to an output terminal 10 through an adder 8. The video signal and sound signal of one program [****] which the televiewer chose from **** among two or more programs received with the digital-broadcasting accepting-station equipment STB are made to output from an output terminal 10.

[0032] Moreover, when changing traveling contact v into the status that it was switched to the stationary-contact b side, like the change-over switch 11 under broadcast accepting-station equipment

STB to which traveling contact v of the above mentioned change-over switch 11 is shown in drawing 1, the bit stream of the digital data outputted from the ** multiplexer 5 is supplied to the digital interface 12 through above mentioned traveling contact v and above mentioned stationary-contact b of a change-over switch 11. And the bit stream of the aforementioned digital data is outputted from the digital interface 12 by the side of the digital-broadcasting accepting-station equipment STB, is given to the record regenerative apparatus 16 through the digital interface 15 by the side of a record regenerative apparatus, and is recorded on a record medium with the record regenerative apparatus 16. [0033] as mentioned above, in making the bit stream of digital data output from the digital-broadcasting accepting-station equipment STB It relates to the program specification information about two or more programs that it can set to the bit stream of digital data after performing error correction. The display on which the title information on the program acquired by the program information analysis section 4 is not illustrated through the adder 8 and the output terminal 10 is supplied. It is based on the title information on a program that the viewer was displayed on the screen of the aforementioned display. Set the information for receiving two or more programs for a reception as which two or more programs which wish to receive are chosen as, and the above was chosen as the selection information input section 7, and by the system-control section 3 in the digital-broadcasting accepting-station equipment STB Only each packet constituted including the information on two or more programs for a reception that the above was chosen controls an operation of the ** multiplexer 5 to be outputted from the ** multiplexer 5. The bit stream of the digital data which corresponds with the program of two or more reception hope is made to output, and record regeneration of it can be carried out with a record regenerative apparatus.

[0034] And as a record regenerative apparatus for making the bit stream of the digital data made to output from the digital-broadcasting accepting-station equipment STB as mentioned above record, VCR of D-VHS method mentioned already, for example can be used. The digital data is made to record in VCR of the aforementioned D-VHS method by the record format with which the margin field 19, the preamble field 20, the sub-code field 21, the postamble field 22, the IBG field 23, the preamble field 24, the main data area 25, the postamble field 26, and the margin field 27 are located in a line with the one remains (track) of record formed in a magnetic tape corresponding to the rotation of 180 degrees of the rotation magnetic head one by one as shown in drawing 13.

[0035] As for the above mentioned main data areas 25, the sink block (synchronous block) number is constituted in all from 336 sink blocks from 0 to 335 by the data area and the error correcting code field. Among the aforementioned main data areas 25, the data area is set as the 306 sink block (6 multiples), and an error correcting code field is a 30 sink block with which a sign (C3 sign) is recorded the outside for error correction. Moreover, drawing 14 shows an example format of the sink block in the above mentioned main data area. In drawing 14, 28 is 2 bytes of synchronous information (Sync) field for reproducing a sink block, and 99 bytes of substantial data storage field where 29 contains 3 bytes of address information (ID) field, and 30 contains an HDR, and 31 are 8 bytes of parity fields for the error correction of a sink block information, and the sink block consists of 112 bytes. And 3 bytes of the aforementioned address information (ID) field 29 is constituted by 2 bytes of ID (identification information for distinguishing the identification information of 336 sink block, and the six remains of record), and the parity of a single byte.

[0036] By the way, as mentioned already, the digital-broadcasting wave motion which receives with the digital-broadcasting accepting-station equipment STB High efficiency compression of various kinds of programs (program) is carried out with MPEG2 encoder. The transport stream (TS) which considered as the transport packet (TP) which has 188 bytes of amount of data, respectively, and carried out time multiplexing of the aforementioned transport packet Sequential transport packet TP and TP-- which have various PIDs as shown in (a) of the drawing 7 mentioned already are the thing of the status that it has stood in a line on the time-axis. similarly (a) of drawing 16 The sequential transport packets TP and TP located in a line on the time-axis show that it is what is constituted including the program information different, respectively using a pattern that it differs, respectively.

[0037] (b) of drawing 16 from transport packet TP and TP-- which consists of the content of a program of each respectively of two or more kinds of programs in (a) of the above mentioned drawing 16 The status that transport packet TP and TP-- about one certain program [****] was chosen and extracted is shown. moreover, (c) of drawing 16 and (e) Are the clock signal of the criteria for timing

measurements, and further (d) of drawing 16 to the HDR prepared in transport packet TP about the program [****] shown in (b) of drawing 16 , and TP-- Transport packets TP and TP about the program [****] recorded on a record medium as status which attached the information (time stamp) on each time of arrival -- The arrangement on a time-axis is shown.

[0038] Transport packet TP about the program [****] reproduced from the record medium in the state of the arrangement on a time-axis which is shown in (d) of drawing 16 , and TP-- further again (f) of drawing 16 the position on a time-axis Using the clock signal of the criteria for timing measurements shown in (e) of drawing 16 , and the information (time stamp) on the time of arrival in the HDR prepared in transport packet TP and TP-- The status of original transport packet TP and TP-- that the time position was recovered is shown. Although the aforementioned drawing 16 showed the case where chose transport packet TP and TP-- about one certain program [****] from transport packet TP which consists of the content of a program of each respectively of two or more kinds of programs, and TP--, and it extracted Choosing transport packet TP and TP-- about a program [**** / plurality] from transport packet TP which consists of the content of a program of each respectively of two or more kinds of programs, and TP--, and extracting cannot be overemphasized by that it is easily realizable, either.

[0039] As mentioned already about drawing 14 , 306 sink blocks of main data areas which consist of 112 bytes, respectively exist in the main data areas 25 in the drawing 13 showing the record format in the one remains (truck) of record formed in a magnetic tape in VCR of D-VHS method mentioned already corresponding to the rotation of 180 degrees of the rotation magnetic head. And with VCR of D-VHS method, since one transport packet TP is 188 bytes like previous statement, as shown in drawing 15 , it is made to correspond with one transport packet TP by two things which the above mentioned sink block of main data areas follows.

[0040] In drawing 15 , the drawing signs 28, 29, and 31 etc. correspond with the drawing signs 28, 29, and 31 currently used all over drawing 14 . In two continuous sink blocks shown all over drawing 15 , since, as for the sink block of the direction in which it is located up, 7 bytes is used by 2 bytes of HDR (main HDR), the area (main packet area) of a single byte, 4 bytes of packet HDR, etc. among 99 bytes of data areas 30 (refer to the drawing 14), the remainder is 92 bytes. Moreover, since, as for the sink block of the direction in which it is located down [in drawing 15], 3 bytes is used by 2 bytes of HDR (main HDR), and the area (main packet area) of a single byte among 99 bytes of data areas 30, the remainder is 96 bytes. Then, the field where the network pattern is given all over drawing all over drawing 15 can become 188 bytes of 92 bytes and 96 bytes of sum, and can arrange one transport packet TP to 188 bytes of the aforementioned field.

[0041] The digital-broadcasting accepting-station equipment STB shown in drawing 1 One program of reception hope is chosen for the digital-broadcasting wave motion which received waves with the antenna 9. When an operation which carries out the decode of the digital data of the one selected program by the decoder 6, and is made to output from an output terminal 10 is performed, And the bit stream of the digital data which corresponds with two or more programs of reception hope for the digital-broadcasting wave motion which received waves with the antenna 9 is chosen. In performing an operation to which the bit stream of the digital data which corresponds with two or more programs as which the above was chosen is made to output through a digital interface Two traveling contacts v1 and v2 of a change-over switch 14 are switched to stationary contacts a1 and a2. Since it changes into the status that it connected too hastily by the above mentioned traveling contact v2 and the above mentioned stationary contact a2 of a change-over switch 14, between I/O of the program information correction processing section 13 It will change the program information correction processing section 13 into the status of non-actuation, and the output of the program information analysis section 4 will be directly supplied to the system-control section 3.

[0042] then, when operating by the mode of operation which the digital-broadcasting accepting-station equipment STB shown in drawing 1 mentioned above The transport packet constituted including the program specification information about two or more programs included in the digital-broadcasting wave motion which received (TP), The transport packet constituted including the information on the program for a reception chosen by the viewer will be extracted by the ** multiplexer 5, and will be outputted through that ***** 6 is supplied **** or the digital interface 12. The transport packet constituted here including the program specification information about two or more programs outputted from the

digital recovery and the error correction section 2 in the aforementioned digital-broadcasting accepting-station equipment STB, The bit stream of the digital data containing the transport packet constituted including the information on the content of an individual program itself For example, it is as follows when the case where suppose that it was what is shown in (a) of drawing 7 , and only two, program #1 and #2, are chosen among program #1-#3 is explained with reference to drawing 8 .

[0043] Supposing the bit stream of the digital data outputted from a digital recovery and the error correction section 2 of the digital-broadcasting accepting-station equipment STB is shown in (a) of drawing 7 PAT which is outputted through the above mentioned digital interface 12, and is recorded on a record medium with the record regenerative apparatus 16 through the digital interface 15 The PAT of the content same as illustrated by (b) of drawing 7 as PAT which has the content about program #1-#3, That is, it is set to PAT which is shown in (b) of drawing 8 which has the same content as PAT which has the content about program #1-#3 shown in (a) of drawing 8 as PAT from the first.

[0044] By the way, the bit stream of the digital data reproduced from the record medium with which the bit stream of the digital data containing PAT which has the content about program #1-#3 which are shown in (b) of drawing 8 is recorded When the program information analysis section 4 in the conventional digital-broadcasting accepting-station equipment STB which was mentioned already about drawing 5 is supplied In order to perform the normal operation according to the flow chart with which the conventional digital-broadcasting accepting-station equipment STB is shown in drawing 6 Corresponding to the content of PAT shown in (b) of the above mentioned drawing 8 , as shown in the record medium at (c) of drawing 8 It is as having mentioned already that a transport packet [as / whose PIDs are 05, 07, and 09] must be recorded corresponding to program #1-#3 of the above.

[0045] However, even if it is the record medium with which the bit stream of the digital data containing PAT which has the content about program #1-#3 which are shown in (b) of drawing 8 is recorded When only two programs, program #1 of program #1-#3 and #2, are chosen by the televiewer like the example as stated above of **, among the transport packets currently recorded on the record medium The transport packet in which PMT (program correspondence table) exists Program #1 chosen by the televiewer, the transport packet in which PMT corresponding to #2 exists, Namely, only a transport packet [as / whose PIDs are 05 and 07 as the example of ** is shown in (d) of drawing 8] is recorded. The transport packet in which PMT corresponding to program #3 contained in PAT currently recorded on the record medium exists, i.e., a transport packet [as / whose PID is 09 in the example of **], is not recorded.

[0046] As mentioned above, the bit stream of the digital data of the status that the transport packet in which PMT corresponding to the program included in PAT currently recorded on the record medium exists is not recorded When the program information analysis section 4 in the conventional digital-broadcasting accepting-station equipment STB mentioned already with reference to drawing 5 is supplied Only by being carried out by an operation of step [in the flow chart shown in drawing 6] (1) - (4) *****ing Although it is as having mentioned already that the decode of the program information can be carried out and it cannot be made to output with the conventional digital-broadcasting accepting-station equipment in order not to progress to a step (5) from a step (4) With the digital-broadcasting accepting-station equipment STB of this invention shown in drawing 1 In case the bit stream of the digital data inputted through the digital interface 12 operates by the mode of operation which is supplied to the program information analysis section 4 Since it is corrected] carried out and it has made to PAT of the content which is shown in (e) of drawing 8 by the program information correction processing section 13 when the content of PAT is the example of ** of the correction [above According to the flow chart shown in drawing 2 , it operates normally, and the decode of the program information which the televiewer chose can be carried out, and it can be made to output.

[0047] Now, when it considers as a mode of operation to which the bit stream of the digital data into which the digital-broadcasting accepting-station equipment STB of this invention shown in drawing 1 was inputted through the digital interface 12 to the program information analysis section 4 of that is supplied, by the control signal from the system-control section 3, the traveling contacts v1 and v2 of a change-over switch 14 are switched to a stationary-contacts b [b1 and] 2 side, and traveling contact v of a change-over switch 11 is switched to a stationary-contact a side. The bit stream of the digital data reproduced from the record regenerative apparatus 16 is given to the stationary contact b1 of the change-over switch 14 described above through the digital interface 12 by the side of the digital-

broadcasting accepting-station equipment STB from the digital interface 15 by the side of the record regenerative apparatus 16.

[0048] Then, the bit stream of the digital data reproduced from the above mentioned record regenerative apparatus 16 is supplied to the program information analysis section 4 and the ** multiplexer 5 from the traveling contact v1 of the change-over switch 14 of the status that it was switched to the stationary-contact b1 side of a change-over switch 14. In the aforementioned program information analysis section 4, like the step (1) in the flow chart of drawing 2 The program specification information about two or more programs that it can set to the bit stream of the digital data supplied to it is acquired from PAT (program information). Presence of PMT (program correspondence table) corresponding to all the programs shown as content of PAT which progressed to the step (2) and was described above is confirmed. If it is checked that PMT (program correspondence table) corresponding to all the programs shown as content of PAT in the step (3) exists (YES), it will progress to step 4. Moreover, if there are some by which presence is not checked among PMTs (program correspondence table) corresponding to the program shown as content of PAT in the aforementioned step (3), it will progress to the (NO) step 5.

[0049] And at step 5, it progresses to a step (6) as a thing without the program corresponding to PMT by which presence was not checked. At the aforementioned step (6), it corrects to PAT which has the content only about the program which corresponds with PMT (program correspondence table) by which presence was checked by the program information analysis section 4 in the content of PAT (program information) of the program specification information about two or more programs which can be set to the bit stream of the digital data reproduced from the record regenerative apparatus 16 in the program information correction processing section 13, and progresses to a step (4). At a step (4), the title information on a program is supplied to a display, the title of a program is displayed, and it progresses to a step (7), and in a step (7), the program a televiewer regards the title of the program displayed on the display, and expects a reception is chosen, and the program selection information of reception hope is set as the input section. The packet by which the system-control section is constituted from a step (8) including the information on the above mentioned program of reception hope is specified, and only the packet constituted including the information on the program of reception hope which the ** multiplexer described above is supplied to a decoder. At a step (9), the decode of the digital data of the above mentioned program of reception hope is carried out, and a regenerative signal is outputted.

[0050] Namely, the digital-broadcasting accepting-station equipment STB of this invention shown in drawing 1 receives the program information analysis section 4. When it considers as the mode of operation which supplies the bit stream of the digital data inputted through the digital interface 12 and it is operating When there are some by which presence is not checked among PMTs (program correspondence table) to which the analysis result of a program information in the program information analysis section 4 corresponds to the program shown as content of PAT The content of PAT (program information) of the program specification information about two or more programs which can be set to the bit stream of the inputted digital data It corrects to PAT which has the content only about the program which corresponds with PMT (program correspondence table) by which presence was checked by the program information analysis section 4 in the program information correction processing section 13. If the example of ** which mentioned already correction of the content of PAT in the program information correction processing section 13 which enabled it to continue an operation and was described above is shown For example, (b) of drawing 8 which shows PAT (program information) of the program specification information about two or more programs which can be set to the bit stream of the inputted digital data is changed into PAT (program information) of the content shown by (e) of drawing 8.

[0051] And the title information on the program acquired in relation to the program specification information about two or more programs that it can set to the bit stream of digital data is supplied to the display which is not illustrated through the adder 8 and the output terminal 10. If the information for receiving the program for a reception which looked at the title information on the program displayed on the screen of the display which the televiewer described above, and chose the program which wishes to receive, and the above chose is set as the selection information input section 7 Only the packet constituted including the information on the program for a reception that the above was chosen controls an operation of the ** multiplexer 5 by the system-control section 3 in the digital-broadcasting

accepting-station equipment STB to output from the ** multiplexer 5. The digital data outputted from the above mentioned ** multiplexer 5 is supplied to a decoder 6 through traveling contact v and stationary-contact a of a change-over switch 11, the decode operation about the digital data of the packet of the picture information supplied to it in the aforementioned decoder (a picture and acoustic MPEG decoder) 6 and the packet of speech information will be performed, and the video signal and sound signal by which decode was carried out will be outputted from an output terminal 10 through an adder 8.

[0052] With the digital-broadcasting accepting-station equipment STB to which the explanation has been performed until now with reference to the drawing 1, the drawing 8, etc. One program of reception hope is chosen for the digital-broadcasting wave motion which received waves with the antenna 9. When an operation which carries out the decode of the digital data of the one selected program by the decoder 6, and is made to output from an output terminal 10 is performed, And the bit stream of the digital data which corresponds with two or more programs of reception hope for the digital-broadcasting wave motion which received waves with the antenna 9 is chosen. In performing an operation to which the bit stream of the digital data which corresponds with two or more programs as which the above was chosen is made to output through a digital interface Leave the content of PAT (race card) as it is, and the program information analysis section 4 of the digital-broadcasting accepting-station equipment STB is received. When it considers as a mode of operation to which the bit stream of the digital data inputted through the digital interface 12 is supplied The analysis result of a program information in the program information analysis section 4 to the bit stream of the digital data inputted into the program information analysis section 4 through the digital interface 12 When there are some by which presence is not checked among PMTs (program correspondence table) corresponding to the program shown as content of PAT The content of PAT (program information) of the program specification information about two or more programs which can be set to the bit stream of the inputted digital data Although it corrects to PAT which has the content only about the program which corresponds with PMT (program correspondence table) by which presence was checked in the program information correction processing section 13 and it was made to enable it to continue an operation by the program information analysis section 4 The digital-broadcasting accepting-station equipment STB shown in drawing 3 One program of reception hope is chosen for the digital-broadcasting wave motion which received waves with the antenna 9. When an operation which carries out the decode of the digital data of the one selected program by the decoder 6, and is made to output from an output terminal 10 is performed, And the bit stream of the digital data which corresponds with two or more programs of reception hope for the digital-broadcasting wave motion which received waves with the antenna 9 is chosen. When performing an operation to which the bit stream of the digital data which corresponds with two or more programs as which the above was chosen is made to output through a digital interface When there are some by which presence is not checked among PMTs to which the analysis result of a program information in the program information analysis section 4 corresponds to the program shown as content of PAT The content of PAT (program information) of the program specification information about two or more programs which can be set to the bit stream of the inputted digital data So that it may be set to PAT which has the content only about the program which corresponds with PMT (program correspondence table) by which presence was checked by the program information analysis section 4 The digital-broadcasting accepting-station equipment STB of this invention made into a configuration mode which rewrites the content of PAT by the program information rewriting processing section 18 is shown.

[0053] The digital-broadcasting accepting-station equipment STB of this invention shown in drawing 3 One program of reception hope is chosen for the digital-broadcasting wave motion which received waves with the antenna 9. When an operation which carries out the decode of the digital data of the one selected program by the decoder 6, and is made to output from an output terminal 10 is performed, And the bit stream of the digital data which corresponds with two or more programs of reception hope for the digital-broadcasting wave motion which received waves with the antenna 9 is chosen. In performing an operation to which the bit stream of the digital data which corresponds with two or more programs as which the above was chosen is made to output through a digital interface Traveling contact v of change-over-switch 14S is switched to a stationary-contact a side. again When performing an operation in which the bit stream of the digital data inputted through the digital interface 12 is supplied to the

program information analysis section 2 and the ** multiplexer 5, the aforementioned traveling contact v of change-over-switch 14S is switched to a stationary-contact b side.

[0054] In the program information analysis section 4 to which the bit stream of digital data was supplied from the aforementioned traveling contact v of change-over-switch 14S When there are some by which presence is not checked among PMTs which correspond to the program shown as content of PAT as an analysis result of the program information on that The content of PAT (program information) of the program specification information about two or more programs which can be set to the bit stream of the inputted digital data The content of PAT is rewritten by the program information rewriting processing section 18 so that it may be set to PAT which has the content only about the program which corresponds with PMT (program correspondence table) by which presence was checked by the program information analysis section 4.

[0055] If an example is given and the aforementioned point is explained, PAT (race card) extracted from the bit stream of the digital data outputted from traveling contact v of change-over-switch 14S in the digital-broadcasting accepting-station equipment STB of drawing 3 now Although it was PAT which has the content about program #1-#3 as shown in (a) of drawing 9 Like [when only two programs, program #1 of program #1-#3 and #2, are chosen by the televiewer] The transport packet in which PMT (program correspondence table) exists as shown in (c) of drawing 9 Only in program #1 chosen by the televiewer and PMT corresponding to #2, the program information rewriting processing section 18 rewrites the content of PAT, as shown in (b) of drawing 9 .

[0056] Drawing 4 is a flow chart for explaining the above operations in the digital-broadcasting accepting-station equipment STB of drawing 3 . From traveling contact v whose bit stream of digital data is change-over-switch 14S, when the program information analysis section 4 and the ** multiplexer 5 are supplied, in the aforementioned program information analysis section 4 The program specification information about two or more programs that it can set to the bit stream of the digital data supplied to it like the step (1) in the flow chart of drawing 4 is acquired from PAT (program information). Progress to a step (2) and it finds whether PMT (program correspondence table) corresponding to all the programs shown as content of PAT described above at the step (2) exists. Judge whether only a specific program is recorded, in YES, it progresses at a step (3), and record of PAT, PMT, etc. is made to be performed. Moreover, when the decision in the above mentioned step (2) is NO, after progressing to a step (4) and rewriting the content of PAT, it progresses to a ***** value (3) and record of PAT, PMT, etc. is made to be performed.

[0057] thus, with the digital-broadcasting accepting-station equipment STB of this invention shown in drawing 3 When there are some by which presence is not checked among PMTs (program correspondence table) to which the analysis result of a program information in the program information analysis section 4 corresponds to the program shown as content of PAT The content of PAT (program information) of the program specification information about two or more programs which can be set to the bit stream of the inputted digital data Since it is made to rewrite in the program information rewriting processing section 18 to PAT which has the content only about the program which corresponds with PMT (program correspondence table) by which presence was checked by the program information analysis section 4 The title information on the program acquired in relation to the program specification information about two or more programs that it can set to the bit stream of digital data The display which is not illustrated through the adder 8 and the output terminal 10 is supplied. If the information for receiving the program for a reception which looked at the title information on the program displayed on the screen of the display which the televiewer described above, and chose the program which wishes to receive, and the above chose is set as the selection information input section 7 In the system-control section 3 in the digital-broadcasting accepting-station equipment STB Only the packet constituted including the information on the program for a reception that the above was chosen controls an operation of the ** multiplexer 5 to output from the ** multiplexer 5. The digital data outputted from the above mentioned ** multiplexer 5 is supplied to a decoder 6 through traveling contact v and stationary-contact a of a change-over switch 11, and sets to the aforementioned decoder (a picture and acoustic MPEG decoder) 6. The decode operation about the digital data of the packet of the picture information supplied to it and the packet of speech information will be performed, and the video signal and sound signal by which decode was carried out will be outputted from an output terminal 10 through an adder 8.

[Translation done.]

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Effect

0058 } [Effect of the Invention] So that clearly from the place explained in detail as mentioned above, the digital-broadcasting accepting-station equipment of this invention One program of reception hope is chosen for the digital-broadcasting wave motion which received waves with the antenna. The decode of the digital data of the one selected program can be carried out by the decoder, and can make it output from an output terminal, and also Out of the bit stream of the digital data containing all of two or more program informations outputted from the digital recovery under digital-broadcasting accepting-station equipment, and the error correction section The bit stream of the digital data which corresponds with two or more programs of reception hope is chosen. It constitutes so that the bit stream of the digital data which corresponds with two or more programs as which the above was chosen can also be made to output through a digital interface. A televiewer chooses from the bit streams of the digital data containing all of two or more program informations outputted from a digital recovery and the error correction section. The bit stream of the digital data which corresponds with the program of the reception hope of the plurality made to output from digital-broadcasting accepting-station equipment through a digital interface After making it record on the record medium of a 1 **** record regenerative apparatus, the bit stream of the digital data reproduced with the record regenerative apparatus is made to input. In order to be also able to make it easy to choose and carry out the decode of the program [****] expected of regeneration from the bit stream of the digital data which corresponds with the program of the reception hope of the plurality made to input When there are some by which presence is not checked among PMTs (program correspondence table) to which the analysis result of a program information in the program information analysis section corresponds to the program shown as content of PAT The content of PAT (race card) of the program specification information about two or more programs which can be set to the bit stream of the inputted digital data As it corrects to PAT which has the content only about the program which corresponds with PMT by which presence was checked by the program information analysis section or it rewrites, the conventional trouble mentioned already by this invention can be solved good.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the block diagram showing the outline configuration of the digital-broadcasting accepting-station equipment of this invention.

[Drawing 2] It is the flow chart used for an explanation of an operation of the digital-broadcasting accepting-station equipment shown in drawing 1.

[Drawing 3] It is the block diagram showing the outline configuration of the digital-broadcasting accepting-station equipment of this invention.

[Drawing 4] It is the flow chart used for an explanation of an operation of the digital-broadcasting accepting-station equipment shown in drawing 3.

[Drawing 5] It is the block diagram showing the outline configuration of the conventional digital-broadcasting accepting-station equipment.

[Drawing 6] It is the flow chart used for an explanation of an operation of the conventional digital-broadcasting accepting-station equipment shown in drawing 5.

[Drawing 7] It is drawing for an explanation of digital-broadcasting accepting-station equipment of operation.

[Drawing 8] It is drawing for an explanation of digital-broadcasting accepting-station equipment of operation.

[Drawing 9] It is drawing for an explanation of digital-broadcasting accepting-station equipment of operation.

[Drawing 10] It is drawing showing the example of a configuration of digital data.

[Drawing 11] It is drawing showing the example of a configuration of digital data.

[Drawing 12] It is drawing showing the example of a configuration of digital data.

[Drawing 13] It is drawing showing the example of a configuration of digital data.

[Drawing 14] It is drawing showing the example of a configuration of digital data.

[Drawing 15] It is drawing showing the example of a configuration of digital data.

[Drawing 16] It is drawing for an explanation of digital-broadcasting accepting-station equipment of operation.

[Description of Notations]

1 [-- The system-control section constituted including memory and the computer,] -- The tuner section, 2 -- A digital recovery and the error correction section, 3 4 [-- A picture and acoustic MPEG decoder (decoder),] -- The program information analysis section, 5 -- A ** multiplexer, 6 7 [-- An antenna, 10 / -- Output terminal,] -- The selection information input section, 8 -- An adder, 9 11 [-- The program information correction processing section 14, 14S / -- A change-over switch, 16 / -- The record regenerative apparatus, 17 which can carry out record regeneration of the bit stream of digital data / -- An adder, 18 / -- Program information rewriting processing section,] -- A change-over switch, 12, 15 -- A digital interface, 13

[Translation done.]